

116. (New) A computer implemented method for an electronic intermediated exchange of a plurality of commodities among a plurality of participants comprising the electronic negotiation steps of:

Sub E1 7 (a) generating electronic opening messages from the participants to the intermediary, wherein the opening messages comprise digital data representing opening requests of the participants to buy and/or to sell amounts of one or more commodities, and wherein, for at least one commodity the opening messages comprise both buy and sell requests;

(b) generating electronic offer messages to the participants from the intermediary in accordance with objectives of the intermediated exchange, wherein the electronic offer messages comprise digital data representing offers to the participants to buy and/or to sell amounts of one or more commodities with each offer being less than or equal to the amounts represented in the corresponding opening request, and wherein, for at least one commodity, the offer messages comprise both buy and sell requests, and wherein, for each commodity, the total of the amounts offered for sale in all the generated offer messages equals the total of the amounts offered for purchase in all the generated offer messages,

(c) generating electronic counter-offer messages from the participants to the intermediary in accordance with the participants' individual exchange objectives, wherein the electronic counter-offer messages comprise digital data representing further requests to buy and/or to sell amounts of one or more commodities with each further request being less than or equal to the amounts represented in the corresponding opening request, and wherein the counter-offer messages are generated in response to the previous electronic offer messages, and wherein, for at least one commodity, the counter-offer messages comprise both buy and sell requests; and

(d) repeating steps (b) and (c), if necessary, until the last offer message to each participant is indicated in a further message to the intermediary from that participant to represent offered amounts of one or more commodities to buy and/or to sell in the exchange that are substantially satisfactory according to that participant's individual exchange objectives,

whereby the substantially-satisfactory offered amounts determine an exchange of a plurality of commodities among a plurality of participants.

D/ 117. (New) The method of claim 116 wherein the intermediated exchange is determined without any messages being sent directly from any one participant to any other participant.

118. (New) The method of claim 116 further comprising, before the step of generating opening messages, a step of generating a plurality of electronic initial messages from the participants to the intermediary, and wherein the initial messages comprise digital data representing the identities of the commodities that the participants may exchange in the intermediated exchange.

119. (New) The method of claim 116 wherein electronic offer messages are generated so that, after a number of repeats of steps (b) and (c), there is at least one commodity and at least one participant for which the amount offered for sale or purchase is less than the amount previously offered.

120. (New) The method of claim 116 wherein counter-offer messages sent from each participant are generated so that counter-offered commodity amounts are less than or equal to corresponding offered commodity amounts represented in the previous offer message.

121. (New) The method of claim 116 wherein the messages are generated so that the exchange is determined in 90 seconds or less.

122. (New) The method of claim 116, wherein the objectives of the intermediated exchange depend on the interests of the plurality of the participants.

123. (New) The method of claim 116 further comprising, before the step of generating opening messages, a step of receiving and storing by the intermediary of electronic objective messages from an operator of the electronic intermediated exchange, each of the electronic objective messages including digital data representing the objectives of said intermediated exchange.

D1 124. (New) The method of claim 116, wherein the objectives of the intermediated exchange are represented by a parameterized utility function with constraints that depend on the interests of the plurality of the participants.

125. (New) The method of claim 116 further comprising a step of determining, for each participant, the monies due from and the monies due to the participant in dependence on the participant's substantially-satisfactory commodity amounts and on concurrent commodity prices.

126. (New) The method of claim 125 further comprising obtaining the concurrent commodity prices from an external source.

127. (New) A computer system for automatically determining a single simultaneous exchange of a plurality of commodities among a plurality of participants comprising:
one or more processors,
one or more links communicatively connecting the processors, and
one or more memories accessible by the processors and storing program instructions for causing the processors to perform the method of claim 116.

Sub F2 128. (New) A computer readable media comprising encoded instructions for causing a computer to perform the method of claim 116.

Sub E2 129. (New) A computer implemented method for electronic intermediated exchange of a plurality of commodities among a plurality of participants comprising the steps of: [a processor, and an electronic memory accessible to the processor for storing (i) digital data representing commodity exchange objectives of the intermediated exchange, and (ii) program instructions for causing the processor to perform the step of generating electronic offer messages in accordance with objectives of the intermediated exchange until the offer messages are substantially satisfactory in accordance with the objectives of the intermediated exchange or are indicated to be satisfactory by the participants, wherein the offer message are generated in response to]

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(a) receiving from the participants

(i) electronic opening messages, which comprise digital data representing opening requests of the participants to buy and/or to sell amounts of one or more commodities, and

(ii) electronic counter-offer messages, which comprise digital data representing further requests of the participants to buy and/or to sell amounts of one or more commodities with each further request being less than or equal to the amounts represented in the corresponding opening request, and

(b) generating electronic offer messages to the participants,

wherein the offer messages are generated in response to previously received opening messages and/or to counter-offer messages,

wherein electronic offer messages comprise digital data representing offers to the participants to buy and /or to sell amounts of one or more commodities with each offer being less than or equal to the amounts represented in the corresponding opening request, and

wherein, for at least one commodity, the opening messages and the offer messages comprise requests to both buy and to sell, and, for each commodity, the total of the amounts offered for sale in all the generated offer messages equals the total of the amounts offered for purchase in all the generated offer messages, and

(c) repeating steps (a) and (b), if necessary, until the last offer message to each participant is indicated in a further message from that participant to represent offered amounts of one or more commodities to buy and/or to sell in the exchange that are substantially satisfactory according to that participant's individual exchange objectives of the participants,

whereby the substantially-satisfactory offered amounts determine an exchange of a plurality of commodities among a plurality of participants.

130. (New) The method of claim 129 wherein the offer messages are generated so that the total amounts of the commodities offered for exchange in all offer messages are substantially maximized.

D/ 131. (New) The method of claim 129 wherein the offer messages are generated so that a measure of the unfairness of the share of commodities offered to each participant is substantially minimized.

132. (New) The method of claim 131 wherein the measure of unfairness increases as the share of commodities offered to the participants differs from a pro-rata share.

133. (New) The method of claim 129 wherein the step of generating the electronic offer messages further comprises substantially maximizing the value of a utility function of the amounts of commodities subject to constraints.

134. (New) The method of claim 133 wherein the utility function comprises a difference of a first term and a second term, the first term representing the total amount of all commodities offered to the participants and the second term representing the unfairness of the share of commodities offered to the participants.

135. (New) The method of claim 129 wherein offer messages are generated so that, after a number of repeats of steps (a) and (b), there is at least one commodity and at least one participant for which the amount offered for sale or purchase is less than the amount previously offered.

136. (New) The method of claim 129 further comprising:

obtaining commodity prices concurrent with the intermediated exchange from an external source, and

determining, for each participant, the monies due from and the monies due to the participant in dependence on the participant's substantially-satisfactory commodity amounts and on the concurrent commodity prices.

137. (New) A computer system for automatically intermediating a single simultaneous exchange of a plurality of commodities among a plurality of participants comprising:

a processor, and

D | a memory accessible by the processor and storing program instructions for causing the processor to perform the method of claim 129.

138. (New) The system of claim 137 further comprising a communication link to an external source of commodity prices.

Sub F4 139. (New) A computer readable media comprising encoded instructions for causing a computer to perform the method of claim 129.

Sub E3 140. (New) A computer implemented method for representing a participant in an intermediated exchange of commodities among a plurality of participants comprising:

generating an electronic opening message to an intermediary, wherein the electronic opening message comprises digital data representing opening requests of the participant to buy and/or to sell amounts of one or more commodities; and

generating one or more electronic counter-offer messages to the intermediary in accordance with the participant's individual exchange objectives,

wherein the electronic counter-offer messages comprise digital data representing (i) further requests to buy and/or to sell amounts of one or more commodities with each further request being less than or equal to the amounts represented in the corresponding opening request, or (ii) an indication that the amounts in the previous offer message are substantially satisfactory to the participant,

wherein each [further request] counter-offer message is generated in response to a previous electronic offer message,

wherein an electronic offer message comprises digital data representing offers to the participant to buy and/or to sell amounts one or more commodities in accordance with objectives of the intermediated exchange with the offers being less than or equal to the amounts represented in the corresponding opening request, and

whereby the substantially-satisfactory, offered amounts represents each participant's objectives in the intermediated exchange.

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141. (New) The method of claim 140 wherein the sending participant's substantial satisfaction with the previous offer message is indicated when the following counter-offer message represents the same amounts of one or more commodities to buy and /or to sell as are represented in the previous offer message.

142. (New) The method of claim 140 wherein the counter-offer messages are generated so that counter-offered commodity amounts are less than or equal to corresponding offered commodity amounts represented in the previous offer message.

143. (New) The method of claim 140 wherein the step of generating counter-offer messages further comprises evaluating one or more procedural rules.

Sub E4 144. (New) The method of claim 140 wherein the step of generating counter-offer messages further comprises evaluating [the] a portfolio theory.

145. (New) The method of claim 140 wherein the step of generating counter-offer messages further comprises substantially maximizing a utility function.

146. (New) A computer for automatically representing a participant in an intermediated exchange of a plurality of commodities comprising:

a processor, and

a memory accessible by the processor and storing program instructions for causing the processor to perform the method of claim 140.

Sub F6 147. (New) A computer readable media comprising encoded instructions for causing a computer to perform the method of claim 140.

REMARKS

Prior claims 87-92, 95-100, and 103-115 have been canceled and new claims 116 to 147 have been added.